



The Raleigh Amateur Radio Society's **EXCITER**

GET INVOLVED

- RARS General Membership meeting: Second Tuesday of the month.
- The RARS net meets every night except Saturday @ 8 p.m. on 146.640.
- The RARS Technical & Trader's net: Saturdays @ 8:00 PM on 146.64.
- RARS meets for a monthly dinner on the First Tuesday of each month.



PUBLIC SERVICE EVENTS

Interested in helping? Visit
<http://www.rars.org/public-service.php>

frequently for our 2016
ham public service
schedule.

RARS General Meeting

Topic: Field Day, Dennis Keith, NC4DK

Date: June 14, 2016

Time: Meeting at 7:30 p.m.

Informal gathering and refreshments from 7 - 7:30 p.m.

Where: Ridge Road Baptist Church. 2011 Ridge Rd., Raleigh
New HAM / Elmer meeting, 6:00 p.m. before member meeting

Tadd Torborg, KA2DEW, Elmer Coordinator

[Click here for more information.](#)

RARS President's Message

June, 2016

Memorial Day has come and gone and we are settling in for the hot days of summer. I hope everyone had a great holiday weekend and took time to remember those who gave their lives so that we may continue to live in a free country.

The DurHamFest was held on Saturday, May 28th. The new location in the Durham County Schools complex seemed to be a good fit for this small but well-organized hamfest. I was pleased to see quite a few RARS members attending as well as

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RARS Officers

PRESIDENT

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The Raleigh Amateur Radio Society

The Raleigh Amateur Radio Society, Inc. (RARS) was founded in 1969 and continues to serve and support the amateur radio community in the greater Triangle area. In 1999, the society incorporated a new RARS and obtained 501(c)(3) non-profit tax status.

The objectives of the club are to promote worldwide friendship through amateur radio; to be of public service by providing radio communications in times of disaster, emergency, or civic needs; to educate members in radio technique, and to provide training classes to assist in obtaining amateur radio licenses.

Anyone interested in amateur radio is eligible to apply for membership. Dues for regular licensed amateurs are \$18 per year (from July 1 through June 30). Additional immediate family members pay \$5 each per year. Dues for licensed amateurs older than 59 or younger than 16 are \$12 per year. Dues for non-licensed associate members are \$9 per year. Applications for membership may be obtained from the treasurer or on the RARS website (www.rars.org).

Exciter

The Exciter is the official newsletter of the Raleigh Amateur Radio Society. It appears each month as a PDF on the RARS website at www.rars.org. Members receive email notification when the latest version is available. Please provide your email address to the Treasurer.

The Exciter welcomes articles, advertisements, and other contributions. To submit a piece to the newsletter, please contact the Editor. The Editor reserves the right to edit any and all pieces. The submission deadline for each month's Exciter is the third Friday of the preceding month. All submissions must be final. Drafts are not accepted.

The views expressed in the Exciter are those of the individual authors and do not necessarily reflect the views of the Editor or RARS.

Tom Lewis, N4TL, editor (editor@rars.org)

For Your Information

RARS General Meeting

Date: **Second** Tuesday of each month

Location: Ridge Road Baptist Church 2011
Ridge Road Raleigh, NC, 27607

Time: People begin arriving at 7 p.m. The meeting officially begins at 7:30 p.m.

RARS Monthly Dinner

All members and guests are welcome to the monthly (first Tuesday) RARS Supper, 6:30PM, at the Golden Corral Restaurant, 6129 Glenwood Ave., Raleigh. Informal and Dutch, just bring your appetite and best rag to chew. 73, Chuck, K4HF

RARS Repeaters in Raleigh

146.640 and 444.525

Join us for the nightly RARS net at 8 p.m. on the 146.640 repeater. All hams holding a Technician class license or higher are invited to check in. We welcome both RARS and non-RARS members to the net.

There is a net Listing on the RARS website click here. <http://www.rars.org/nets.php>

VE Testing

The RARS VEs will accept walk-in testing in February, May, August and November at 5:30PM, prior to RARS membership meetings at Ridge Road Baptist Church; the RARSfest in April; the Cary Swapfest in July; the JARS-Fest in November; and following RARS license classes. Please bring a photo ID, your original and a copy of your current license, your \$14 exam fee, and any valid CSCEs that prove passing elements beyond that of your current license. Visit www.rars.org for more information.

President's Message continued

vending their wares. Please continue to support our local hamfests.

ARRL Field Day is coming on June 25th and 26th. RARS will again setup at the Carroll Farm at 4501 Friendship Rd., Apex, NC. Special thanks to Jim, N4CAE and Beth, KF4QMR, for offering to host the club on their property. Plans are underway to make this year's Field Day a success. We will be returning to the single tent format after positive reviews from last year. Mark your calendars for the fourth weekend in June and make plans to attend and participate in this year's event. Field Day kicks off at 2:00 pm EDT on Saturday and ends at the same time on Sunday. RARS will provide a catered meal on Saturday around 6:00 pm. If you have friends or family who are interested in amateur radio, here is your opportunity to show them what we are all about. There will be a GOTA station in operation to allow unlicensed, newly licensed, or generally inactive hams a chance to actually get on the air and make contacts during Field Day.

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President's Message continued

Here is my Field Day Challenge.
Most of you know a person who was a former ham who drifted away from the hobby due to college, family, kids, or career. Or maybe you have a friend or co-worker who is curious about all that equipment you have at home or in your car. Now is the time to invite that person to Field Day. Who knows, maybe this is the spark needed to convince that person to get their ham license or for that former ham to be re-licensed.

As always, thanks to you all for supporting RARS and I hope to see you at Field Day.

73 and Good DX,

Dennis, NC4DK

New Members

Adam Violette	KM4CMT
Tracey Violette	No License
Craig Sheppard	W4CRG
Mike Turner	KM4SCO
Peggy Turner	KM4SCN
John Deacon	KM4TXU
Eric Morris	KM4TXV
Nikolay Gekht	KM4UAG

RARS June Birthdays

William	KM4IIW	06/02
Dawn	KD4EVV	06/03
Justin	KM4IFS	06/04
Gwen	KF4EUT	06/05
Mark	KM4JRH	06/06
Shelby	NC4SH	06/06
Lisa	KM4AMW	06/06
Sean	NC4ST	06/07
Rick	N4VQT	06/07
Raymond	NC4OO	06/08
Kurt	N4KJK	06/08
Darren	KM4IFT	06/08
David	W4OFO	06/10
Charles	NZ0I	06/11
Michael	KM4JEK	06/11
Rich	N1DDY	06/14
John	KM4KRS	06/15
Wade	KK4UGY	06/19
David	KM4JED	06/19
John	KM4IFW	06/19
Steve	W4MGT	06/21
William	W4AK	06/21
Bobbie	KD4ZVW	06/22
Kelly	KD4EWG	06/24
Lanny	K1LEC	06/24
Gary	N3GO	06/25
Bob	AH2X	06/27

May 10, 2016 RARS meeting, [North Carolina QSO party](#) award



Joanne Mars, AK4RJ presenting a NCQP award to the Jenkins Family



NCQP First Place Expedition Category, The Jenkins Family

Sam KI4TRG, Sarah and Dad Steve W4MGT

May 10, 2016 RARS meeting



Door prize winners from left to right
Keith KN4NBO, Fin NC4FG, Mike KN4SCO,
Larry K4LXV, Sarah Jenkins, and Sam KI4TRG



May 10, 2016 RARS meeting

During the meeting Bert, N4CW gave a presentation on antennas.



Bert, N4CW giving his presentation.

N4CW Suggested Antenna Reference Bibliography:

1. ARRL Antenna handbook
2. ARRL Antenna publications
 - a. "Simple and Fun Antennas for Hams"
 - b. "Antennas for Small Spaces"
 - c. "Antenna Impedance Matching"
 - d. "Antenna Physics: An Introduction"
3. Don't overlook the Antenna section in the ARRL Handbook for Radio Communications.
4. W6SAI HF Antenna Handbook
5. The Amateur Radio VERTICAL ANTENNA HANDBOOK by Capt. Paul H. Lee, K6TS (A CQ Publication)
6. And books to look for
 - a. "Mobile Antennas – 40+5 Years of HF Mobileeering" by Don Johnson, W6AAQ
 - b. "The Modern Amateur's MOBILE Handbook" by Dave Ingram, K4TWJ an MFJ publication.
 - c. "HF Antennas for all Locations" By L.A. Moxon, G6XN an RSGB Publication
 - d. PRACTICAL ANTENNA HANDBOOK By Joseph J. Carr, TAB books.

Bowline Knot

During the May presentation on antennas by Bert, N4CW, one person asked about the knot used in one of the pictures. It is a Bowline knot. It is a handy non-slip knot. The picture below shows how to tie it.

Bowline Knot



Inverted Vee antenna insulator. The knot used on the rope is a Bowline.



The tree in the above left picture is being strangled by the antenna support rope. The rope was moved and a Bowline Knot is now used so the tree will not be strangled.

<http://www.animatedknots.com/bowline/#ScrollPoint>

Come join us for a summertime
classic...

ARRL Field Day 2016



The Raleigh Amateur Radio Society (RARS) Field Day
site will be at

4501 Friendship Road, Apex NC

The public and visitors are welcome from 11 AM until 9
PM on Saturday, June 25th. Also on Sunday June 26th
from 7 AM until 11 AM.

For more information about RARS, visit www.rars.org

Time to Renew!

Please help us continue to provide quality programs, activities, and events for our club members. One of the ways we do this is through the RARS annual dues. The membership year is July 1- June 30, so it's time to renew!

There are a number of ways to pay your dues.

Pay at a RARS meeting.

Mail your dues to the RARS Treasurer at the following address:

Greg Seamster

1405 Leanne Court

Raleigh, NC 27606

Pay online at <http://www.rars.org/joinrars.htm>. Online payments are made via PayPal to Ra-leigh_ARS@earthlink.net. If there are no data changes to your membership (address, call, license class, etc.), you do not need to fill out a renewal form. The membership form can be downloaded in a PDF format at <http://www.rars.org/joinrars.php>.

Please provide updates for your interest in Public Service, SKYWARN, and ARES.

Note: You can view you membership status and update data at <http://www.rars.org/only.php>.

Thanks! We could not do it without you.

Dues

Regular	\$18
Reduced (under 12 or over 60)	\$12
Associate (not licensed)	\$9
Each additional family member	\$5

*You are welcome to renew for multiple years!

Thanks,

Greg Seamster KE4PAX



New HAM / Elmer meeting, 6:00 p.m. before member meeting

Just as we did in April, we attempted to set up a demo 40 meter short wave HF station for the new ham meeting. April was successful in that a couple of our new hams were able to make contacts, but it was drizzling and not much fun. This time, with the goal of putting up the same equipment (a mal-tuned 40m dipole in a tree, and an ICOM IC-735 circa-1987 radio) we went to get on the air in the sunshine and light breeze of a beautiful day. Alas your brilliant and thoughtful host forgot to bring the power cable for the IC-735. Fifteen minutes later KM4DVE, new-ham Nathan, shows up in his car which (ever prepared) included Nathan's latest version GO-Kit which was a Yaesu FT-897 mobile radio in a weather-sealable carry

case, and a car-battery in another easily carried and sealed box, both with Anderson power-pole connectors, ready to go on the air. With Gel-Cel (with power poles) and IC-735 (power-cable forgotten) now relegated to prop-category, we got on the air. By this time we had a dozen people, some who hadn't been here in April, and a few who had. Billy, KE4VNC, and Fin NC4FG (and others I suspect) had put the antenna up in a sloping configuration favoring north. They'd also tuned the antenna, though not permanently, by bending the wire back on itself. I think it was Fin who had brought an antenna analyzer. By 6:15pm we were on the air on 40m. I dialed over to 7.258Mhz, the net frequency for MIDCARS service net,

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which ends at 2PM Central time, long before we got on the air. One of the nice things about getting onto a NET frequency after the net is over, is that those frequencies tend to be left quiet. It isn't anybody's community home channel. It was a pretty likely chance that nobody would mind if we got on and called CQ there. I did that, claiming to be a special event station of the RARS, and, with president NC4DK's permission I used the RARS club call sign W4DW. We quickly got a response back from John KC2AAK, in Troy New York. I lent the microphone to several of the new hams and many conversations were had between our flock and John in Troy.

Peggy KM4SCN

Mike KM4SCO

Pamela (waiting for her call)

Kathleen KM4CSF

Keith KM4NBO

Nik (waiting for his call)

Sam KZ4SAM (was KM4PXV)

Anybody I missed?

Your brilliant and attentive host did NOT note who actually got on the air except that I know Sam did.

Besides that everybody that wanted to, and several who did not, were able to make contacts, an interesting thing developed with some of the attendees who already had ham stations. The performance of the 10' and lower dipole was noted as being amazing, compared to compromise antennas and antennas mounted in attics. I agree. An outdoor full-size dipole is much better than anything less than a Yagi. People who suffer from poor luck using compromise antennas would probably enjoy going out to a park someplace and stringing up a dipole from the trees for a few hours. Dipoles work. The

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one we were using cost about \$50 including the W2AU™ 1:1 balun available from Unadilla for \$33, and the heavy antenna wire is from “The Wireman” and is “#531 Toughcoat Silky antenna wire”. Also used 770 paracord rope from Synthetic Textiles. Both the rope and the balun are also available from Ham Radio Outlet and others. The Wireman is a unique source. I recommend checking out these vendors.

In July or August, weather permitting, we may do the outdoor station again. This coming meeting I was think-

ing of bringing a heat-gun (for paint stripping) to demonstrate heat-shrink tubing, and crimping tools plus Anderson Power-Pole, 12v DC power connectors. Perhaps we’ll do the heat-shrink and connectors if it is raining and the HF station if it is not? Let’s see what the rest of the volunteer educators wants to do. I’ll never turn down a good presentation!

Thanks for everybody’s help in getting this setup going, especially NC4FG, KE4VNC, and KM4DVE.

73 de KA2DEW



Your first HF radio

I'm Tadd, KA2DEW. I've been a ham for 37 years, having started as a teenager. I've owned a dozen or so HF radios, most bought used or traded for, one bought cheaply new, two bought expensively new, and two given or loaned to me for free. I currently own 3 different HF radios, two are of the cheap used variety, and one expensively bought.

I've individually Elmered about a dozen hams in my career and served on the board, or as president/chairman, or as founder of several clubs.

Ok. That's my boring credentials.

My point... My point is about your first HF radio. A new great HF radio costs between \$2000 and \$10000, depending on your mission and your definition of great. If you sit around with a bunch of \$2000 and up radio owners, and listen to them talk about their equipment, even argue amongst each other about which is best, you will realize that the reason each radio becomes a favorite is something so picky or individual, that there is no way a new HF operator could possibly know what to pick. Do we like the Flex radio's fantastic analysis and display of the band? Or the Elecraft's integrated chassis with well thought out circuitry and tracking dual diversity receiver? Or the Yaesu's well behaved receiver, beautiful displays, well positioned controls and displays? Or ICOM or Kenwood or TenTec, and the list goes on? There is so much to be said for each and really the only way to know is to play on the

air and get used to the difficulties and challenges of operating how YOU will be operating. Do you do contests with several radios in a room? Do you go out in a lonely field and string up your own antenna? Are you going to be running a channel or searching and pouncing? Do you run amplifiers? Multiple receive antennas? Do you operate every day? Only during contests? Only during PARTICULAR contest? Rag chewing with the same people? Do you need roofing filters? Do you need digital modes? Will you be using external displays or depending on the built in displays? Should the decoding and display of text be built in? Is full break in and good sound during transmit important? All of these questions will guide your choice of a radio.

But wait. We're talking about your FIRST radio. How could you know the answers to these questions?

Hopefully you'll realize that you don't know. And after listening to the experienced operators who have already bought radios, and even thrown some back into the pond to grow some more, you would see that you can't know. Even the experienced operators apparently don't know.

So where do you start?

The really amazing thing, is that even the most expensive of the production HF radios will eventually graduate to the cheap-used category. The mighty Kenwood TS940, a

great radio in its time back in the late 80s, is currently a \$300 radio, \$400 if it comes with the desk mike. The desk mike may be worth more than many of the radios it shipped with! The same thing goes with the ICOM IC-761 and even the ICOM IC-781. Fabulous radios, now flea market fodder.

More importantly, many of the really good HF radios, which today would cost between \$900 and \$1500, will show up on the flea markets at the \$200 price point in 15 years or so, long before they are “worn out”.

My recommendation... is that you try, perhaps even desperately, to get or borrow a radio for free. At the same time you are doing that, try to find a line on some of the reliable old standbys. An ICOM IC-735 or Kenwood TS430 is a really decent radio that was on the order of \$1000 new in the mid to late 80s and are currently of the \$200 price-class on the used market. I would go for a radio which has digital tuning, solid state finals, and is made after 1983. Radios made earlier than that ask the same price at the flea markets as the ones made later and the later units

are much easier to use and some of the early computer-control defects were taken care of by 1983. Try to get one from somebody who has a Call Sign and will let you call them with questions.

Even if the radio you get is hard to use (and it won't be) you will learn very valuable lessons on what is important to you.

One thing you should know is that many hams who buy a new/fancy radio after having been on the air for a few years, will keep their first or early HF rig around as a back-up. Some of those radios haven't been used for years and 10 years later the ham would love to lend it out, even help you set it up and get on the air. Take advantage of this. You may think that you as the new ham are stepping on their toes and getting in the way, but as a 37 year experienced ham I can tell you, I'd much rather YOU, the new ham, find fun in my favorite mode, than for me do great in that same mode.

73 and have fun!

KA2DEW

Tadd Torborg



ICOM IC-735



Kenwood TS430

Why does the Exciter look so bad when I read it on the website?

A quick search on the web for something like "pdf files look bad in my browser" will find that this is a common complaint. Adobe originally created PDF as a way to share documents on different platforms while preserving the appearance of the documents. PDF was originally based on a proprietary format that was owned by Adobe. In 2008 Adobe released PDF as an "open standard" making it legal for anyone to create their own PDF writers and readers.

Until 2008 the only way to read a PDF was to use the free Adobe Reader but as soon as it became an open standard the browser makers all started building their own PDF readers into their browsers. But the browser implementations often do not produce the same results as the external PDF readers and often wind up with an appearance that is noticeably different when compared to the original document.

So how can you get a true presentation of a PDF document when you are using a browser? My solution is to NOT let the browser display a PDF document but tell it to use a PDF reader. It is likely you already have one on your computer, but if not you can download the current free Adobe Reader directly from the official website - <https://get.adobe.com/reader/>, or download one of the other free readers that are currently available, the most popular free alternative

to Adobe is probably Foxit - found at <https://www.foxitsoftware.com/products/pdf-reader/> Foxit is a smaller faster program than Adobe Reader but it does not include some of the fancy features of Adobe Reader. Any of the popular standalone PDF readers will be independent of your browser and should render a true reproduction of the original document.

N.B. Any time you download software ALWAYS read the screen carefully to make sure there isn't additional software included that you probably don't want to put on your computer. Look for check boxes or other options indicating whether or not you want additional software downloaded and installed along with the requested software.

Once you have a PDF reader installed on your computer it can read PDF files that are stored on your computer by clicking the file or icon. If you want your browser to open PDF with the reader you have installed rather than in a browser window, you will need to change some options in the browser. How to do this also varies depending on what browser you have. The examples below are where MY browsers options are located. You may be running different release levels than mine so your mileage may vary.

Mozilla Firefox version 46.0.1:
Under Options, select Applications: then scroll down to "Portable Document Format (PDF)", try the

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available options and pick the one you prefer. I use "Always Ask" which will let me decide which option to use each time I select a PDF document.

Google Chrome Version 50.0.2661.102 m :

Open Chrome and Type chrome://plugins/ in the address bar, hit enter.

When the Plugins window opens find "Chrome PDF Viewer" on the list and click the Disable link.

The next time you click a link to a PDF it should open in Adobe Reader or whatever PDF Viewer you have installed.

Internet Explorer:

I have not been able to get Internet Explorer to open PDF files with an external PDF reader but it seems to render PDF documents well. When I want to see the document in an external reader I just download the PDF to the desktop or other location, then click on the downloaded file to open it in the PDF Reader.

If anyone needs additional information I will try to answer any questions, but I am not an expert on all browsers or all PDF readers.

73,
K4HM - Hank

RARS Original Charter dated MAY 1, 1969



Club Shirts

At the last Member Meeting the shirts were displayed in all the sizes except the 3X Large size (these are special order and not kept in stock). Some orders were taken and these shirts will be available at the Member Meeting Jun 14.

The samples will also be at the next Member Meeting and orders will be taken and the shirts will be available at the Jul 12 meeting. Fill out your order form before the meeting. I will not have change; make checks out to the company (name is on the order form).

This batch method of ordering and delivery has saved members the \$4.75 in shipping and handling. After the Jun 14 meeting, members will only be able to order the shirts from the form in this month's Exciter or on the RARS website and pay the \$4.75 in shipping and handling. For the shirts to be available for future RARS meetings they should be ordered earlier than 14 days before the meeting (that is the deadline for the company to process the batch of RARS shirts).

You probably know that sizes of clothes are not consistent. I suggest that you get one of your shirts that is a comfortable fit and measure it. Compare the measurements you got with the sizes on the form. I measured the samples to use as a guide for the sizes. Please note that measuring apparel is not an exact science on your part or mine (and for that matter, the manufacturer).

You can contact me

(education@RARS.org) about the order form.

All other matters concerning the shirts should be discussed with the company (contact info is on the order form). The company is local and is run by people who are hams and members of RARS. They have been extremely helpful in this process.

Murray, K4MHM

Education Director

The current Amateur Extra Class course will end Jun 11 and an optional exam will be that afternoon. The Technician Class course is next, but there is a potential schedule conflict so the start date is somewhat in question at this time. The General Class course is scheduled to start Oct 1. The instructor will be Mike Murphy, WA4BPJ. To pre-register or for more information contact me at:

education@RARS.org.

Murray, K4MHM

Youth

There is a **Youth & Family Emergency Preparedness Day** conducted by [The Youth Exploration Services](#) on June 18 from 9:00 to 2:00 at St. Paul AME Church in Raleigh. RARS will have a booth and demonstrate the usefulness of ham radio during emergencies. Speaking of June 18, it is also [ARRL Kids Day](#) from 1800 UTC to 2359 UTC. Get a kid in front of a mike. We have youth in our club. Talk to them – they're hams too. Ask them what their interests are and if they need any help.

Murray, K4MHM

RARS Shirt



For information on this shirt see Murray's, K4MHM comments on the [previous page](#).

Also see the order form on the [next page](#).

**RALEIGH AMATEUR RADIO SOCIETY
CLUB SHIRT ORDER FORM**

Company: Supreme T-Shirts and Apparel, 2813 Banks Road, Raleigh, NC 27603 919-772-9040

Web Page: www.SupremeTShirts.com Information: info@SupremeTShirts.com

Contact the company if there are issues with a shirt.

Description: Glidan DryBlend Golf Shirt, Navy Blue, 50/50 jersey knit dry blend, with pocket & embroidered RARS logo on left chest

Optional call sign on right chest: $\frac{3}{4}$ ", colors: white, light blue or red:

Sizing (approximate, chest and waist sizes are the same): Small: Shoulder: 17" Waist: 38" Length: 27"

Medium: Sh: 19" W: 42" Lth: 29"; Large: Sh: 21" W: 46" Lth: 30" XLarge: Sh: 23" W: 50" Lth: 31"

2XLarge: Sh: 26" W: 54" Lth: 32" 3XLarge: Sh: 28" W: 56" Lth: 32"

Prices: Small, Medium, Large, XLarge: \$ 20.00, 2XLarge: \$22.00, 3XLarge:\$ 23.00,

Call Sign: \$4.00 per shirt

Shipping and Handling: \$4.75 per shirt.

Order:

Quantity	Size	Optional Call Sign	Call Sign Color	Total Price of Shirt(s)
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_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Total of Shirt Prices: _____

Pricing

Total of Shirt Prices:..... _____

6.75% Sales Tax (Total of Shirt Prices x .0675):..... _____

Total Amount of Shipping and Handling (\$4.75 per shirt):.... _____

TOTAL:..... _____

PRINT LEGIBLY

Name: _____ Call Sign: _____ Date: _____

Address _____

Telephone Number: _____ E-mail Address: _____

Make Check To: Supreme T-Shirts and Apparel

Credit Cards Accepted (Master Card, Visa, Discover): Credit Card Company: _____

Exact Name on Card: _____

Card Number: _____ Expiration Date: _____

3 Digit Number on the back of the card: _____

Rev: 2016-06-02

The ARRL, NPOTA and Anderson SC

Throughout 2016, Amateur Radio will be helping the National Park Service celebrate their 100th anniversary. Hams from across the country will activate NPS units, promote the National Park Service and showcase Amateur Radio to the public. You can read about the event at this website, <http://www.arrl.org/NPOTA>. I have been working as many National Parks on The Air stations as I can. On May 15th I worked KK4AGN while she was activating a park. I looked up her call. She is the Editor of the Anderson Radio Club's Newsletter, Anderson , SC. In 2016, the Anderson Radio Club is celebrating its 50th anniversary! If you want to find out about this ham club you can visit their website, <http://www.andersonradioclub.com/> and read their newsletter too.



73 Tom, N4TL.

Future Hamfests

A full list of Hamfests can be found at the [ARRL website](#).

07/09/2016 | [31st Annual Firecracker Hamfest](#)

Location: Salisbury, NC Type: ARRL Hamfest Sponsor: Rowan Amateur Radio Society
Website: <http://www.rowanars.org/firecracker-hamfest>

07/16/2016 | [Mid-Summer SWAPFEST](#)

Location: Cary, NC
Type: ARRL Hamfest
Sponsor: Cary Amateur Radio Club
Website: <http://www.qsl.net/n4nc>

09/03/2016 | [North Carolina State Convention \(Shelby Hamfest\)](#)

Location: Shelby, NC
Type: ARRL Convention
Sponsor: Shelby Amateur Radio Club
Website: <http://shelbyhamfest.org>

Tar Heel Scanner/SWL SIG group

The Tar Heel Scanner/SWL SIG group met on May 16th at Red Hot and Blue restaurant on Falls of Neuse Road in Raleigh. Thirteen people attended.

Bob Kulow, WA2UEH, gave a presentation on his remote AM radio antenna set-up. He demonstrated how he used two self-syn motors to rotate the antenna.

Curt Phillips, W4CP, discussed plans for this year's Field Day. Curt will be the band captain for 15 and 80 meter phone.

And, Marshall Sherard, KE4ZNR, gave an update on the Triangle area's public service communications.

The group enjoyed the topics and the meeting adjourned at 9:00.

The next meeting will be held on June 20th at Red Hot and Blue. The meeting topic has yet to be decided.

Meetings are held on the third Monday of each month. We meet at 6:30 for dinner and the meeting begins at 7:30 and ends at 9:00. For more information and announcements about the upcoming meetings, see the Tar Heel Scanner / SWL SIG Yahoo group (<https://groups.yahoo.com/neo/groups/tarheelsscanner/info>)

73, Kelly AE4FG

Space Weather News for June 4, 2016

WHERE DID ALL THE SUNSPOTS GO?

Something interesting is happening on the sun.

On Friday, June 3rd, the sunspot number dropped to 0, and the solar disk is still blank this weekend, June 4 & 5th. This is a sign that the sun is slowly shifting into a new phase of the solar cycle.

Learn more about the transformation on

Spaceweather.com.

<https://www.facebook.com/spaceweatherdotcom>

Thanks to Bill W2CQ for this information.

Minutes

Raleigh Amateur Radio Society Board of Directors Meeting April 19, 2016

1. The meeting was called to order at 7:10 pm by President Dennis Keith, NC4DK
2. Minutes from the March meeting were approved.
3. Vice President Tom Lewis, N4TL, reported that all presentations are scheduled for the remainder of the year except for September. He is currently working to get that month scheduled. Next month's presentation will be on Basic Antennas, by Bert, N4CW.
4. Treasurer Greg Seamster, KE4PAX, reported that there are 432 members. 75 members from last year have not renewed. The invoice from the fairgrounds for RARSfest has not been received.
5. Public Service Director John Snellen, AI4RT, reported that there is one new event on the schedule, the WRAL Freedom Balloon Fest on Memorial Day weekend in Fuquay-Varina. This is a three day event and will be coordinated through the Fuquay-Varina Police Department. The MS Walk and Raven Rock Ramble are also on the schedule.
6. Education Director Murray Merner, K4MHM, reported that there were 14 students enrolled in the current Amateur Extra class, which runs for seven sessions. The next Technician class will be in early October.
7. Public Information Officer Charles Good, KM4AMT, reported that there were only a few copies of the RARS brochure remaining. The file for the original document will be sent to board members for review to determine if any additions or amendments need to be made. The suggestion was made to check with Office Depot on using the club discount for the next printing.
8. Scouting Coordinator Murray Merner, K4MHM, reported that there was good participation in the HF station setup at RARSfest. The station consisted of HF, VHF, and digital stations. BSA will hold the Jamboree On The Air event on the third weekend in October. Plans are underway to determine RARS' participation in this event.

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9. RARSfest Chair Ian Hewitt, N0IAN, submitted a summary report on RARSfest. Attendance was up to a little over 1750 people this year. No major problems were reported. There were 185 attendees at the RARSfest dinner.
10. Tom, N4TL, reported that he had forwarded several photo files from RARSfest to Webmaster Hank Montgomery, K4HM, to be added to the RARSfest page on the website.
11. Exciter Chair Tom Lewis, N4TL, requested the appointment of a volunteer as a backup editor for the Exciter. Charles Good, KM4AMT, advised that he would be available for those duties.
12. NC QSO Party Chair Marty Young, W4MY, reported that the results were in from the 2016 QSO Party. Plaques are being distributed to the winners of the various classes. The event was deemed to be a big success.
13. Old Business – Murray reported that he hoped to have samples of the RARS shirts for display at the next membership meeting. He also will have order forms available to those who wish to purchase shirts.
14. New Business – Murray suggested adding an information page to the website defining the training and requirements necessary for those who wish to be involved in ARES/AUXCOMM activities. After discussion of the information that should be included on this page it was moved and seconded that an emergency service page be added to the website.
15. In other new business, discussion was held on increasing the size of the RARS storage site on Beryl Road. The current 5 x 10 space is full and access to stored items is difficult. The new lease is due to be paid for the coming year. The board approved upsizing the storage space to a 10 x 10 space. Plans were made to transfer the contents to the new space after adding appropriate shelving.
16. The meeting was adjourned at 9:40 pm.



MINUTES

Raleigh Amateur Radio Society General Membership Meeting May 10, 2016

- The meeting was called to order by President Dennis NC4DK at 7:32 p.m.
- There were 59 members present which constituted a quorum
- The minutes of the April 12, 2016 meeting were approved as published in the Exciter.
- Vice President's report: - VP Tom N4TL reminded us of the EXCITER newsletter which is published monthly online and is available from the RARS website.
- Treasurer's report: Greg KE4PAX: We have 435 members. The Club's storage unit has been increased to 10 feet by 10 feet, which is twice the size of our previous unit. See Greg for other details.
- Visitors & new members: Sarah Jenkins (no call) came with her family for the North Carolina QSO Party (NCQSOP) award.
- Announcements:
 - The monthly RARS Dinner will be Tuesday, June 7 at 6:30 p.m. at the Golden Corral on Glenwood Ave.
 - The RARS board meeting will be Tuesday May 17 at 7:00 p.m. in the church.
 - The after meeting gathering will be at the Applebee's on Hillsboro at Gorman.
- Committee Chairs:
 - Public Service: Dennis NC4DK (in John AI4RT's absence) reminded all to check with John or the RARS website for Public Service events. The next event is the balloon festival in Fuquay.
 - Field Day: Dennis NC4DK reminded us that Field Day is June 25 – 26. Dennis will present the details at the June meeting next month.
 - FM Repeater: no report.
 - NCQSOP: In Marty W4MY's absence, Joanne Mars AK4RJ introduced the Jenkins family. The 5 members went to Warren County for the event and

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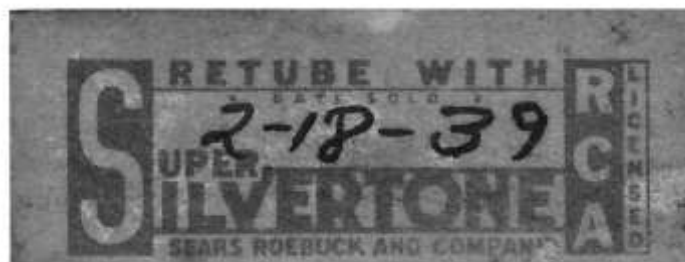
made 406 contacts in 10 hours on air, worth 96,000 points. Joanne presented a commemorative plaque.

- At large: no report
- Education: Murray K4MHM said a VE Session was held this afternoon. Four candidates all passed at least one level – 2 new techs and 2 new generals.
- Old business: Club Shirts - Murray K4MHM displayed sample shirts. Monogramming is available. Delivery is available. Dennis recognized Murray and Joanne AK4RJ for their long time work in bringing these shirts to fruition.
- New Hams – Tadd KA2DEW described recent new ham meetings. They had a 40m station in the church yard this afternoon. They used Nathan KM4DVE's go-kit with a dipole strung across the churchyard, and worked up to New York. A number of new hams got on the air.
- Guests: Sara Jenkins (no call), Bert Michaud N4CW
- Door prizes were donated by the Jack Ritter estate. In the drawings the prizes were won by Keith KN4NBO, Larry K4LXV, Sarah Jenkins, Mike KN4SCO, Fin NC4FG, and Sam KI4TRG.
- Program. Tom N4TL introduced Bert N4CW, who gave a presentation, "Simple yet Practical (Basic) Antennas". Bert described verticals, vees, wire dipoles, end fed antennas and Zepps. Bert included illustrations and useful information about methods and materials.
- Dennis NC4DK adjourned the meeting at 9:27 pm.

Respectfully submitted,

Robert E. Chapman, NC1X

RARS Secretary



Current Public Service Opportunities

To volunteer for a Public Service event please go to the RARS website and complete the form at the top of this page. <http://www.rars.org/public-service.php>

The Ham Public Service Net The HPS Net is on vacation, we will resume when the 2016 PS season begins. We will use the following repeaters in the Carolina 440 Link System:

441.725(+)(100) – Raleigh, NC Hub
443.450 (+)(100) – Cane Mt., Snow Camp, NC
444.325 (+)(100) – Holly Springs, NC
444.375 (+)(100) - Henderson, NC
444.550 (+)(100) – Coats, NC
444.775 (+)(100 – Cary, NC
444.875 (+)(100) – Wendell, NC
145.330 (-)(100) – Goldsboro, NC
442.250 (+)(107.2) - McCain/Southern Pines, NC
444.200 (+)(179.9) - Johnsonville, NC
444.025 (+)(100) - Benson, NC
442.425 (+)(100) - Buxton, NC

(The net is also accessible through IRLP Reflector 9210)

The Ham Public Service Yahoo Group link is: [Ham Public Service North Carolina](#)

Choose the event(s) for which you would like to volunteer and complete the sign-up form at the RARS website .. note... one form for EACH event that you are volunteering. We are glad you are back. <http://www.rars.org/public-service.php>

*** TO VOLUNTEER FOR ANY OF THESE EVENTS ON THE NEXT PAGE
FILL OUT THE FORM AT <http://www.rars.org/public-service.php>**

2016 MS ICE CREAM RIDE

June 18, 2016 - Saturday - Morrisville, NC

16th Annual MSFITS Ice Cream Ride - Hosted by TEAM MSFITS. Enjoy a fully supported ride and best of all ICE CREAM AND TONS OF TOPPINGS in the AIR CONDITIONED COMFORT of the beautiful Biogen Campus when you finish the ride.

Ham Volunteers are needed for SAGs, Rest Stop Monitors, course safety and rider support.

* Ham Coordinator: John (ai4rt)

* Location: Biogen Campus, 5000 Davis Dr., Morrisville, NC 27709

* Event Website: [Ice Cream Ride](#)

2016 FIRECRACKER 50/100

July 4, 2016 - Monday - Apex, NC

The July 4th Firecracker Ride is changing locations!!!!!!!

For 2016, the Firecracker Ride will start/end at Brueprint Brewery!! The brewery and taproom are located at 1229 Perry Road, Suite 101, Apex, NC.

Proceeds from the ride will benefit the Greater Carolinas Chapter of the National Multiple Sclerosis Society.

Ham Volunteers are needed for all the usual PS event functions, SAGs, Rest Stop Monitors, Shadow, Net Control, course safety and rider support.

* Ham Coordinator: John (ai4rt)

* Location: Brueprint Brewery 1229 Parry Rd. # 101, Apex, NC 27502

* Event Website: [Firecracker](#)

2016 VELO 4 YELLOW

July 16, 2016 - Saturday - Raleigh, NC

We will offer 3 routes: 30, 60 and 100 miles along the scenic country roads of Northern Wake, Granville, Person, Durham and Vance counties. Enjoy the ride with stocked rest stops, SAG vehicles and mechanical support. A buffet lunch provided by Carolina Ale House accompanied by live music from Last Man Standing will make for a festive post ride party! Proceeds from Velo4Yellow will benefit LIVESTRONG in the fight against cancer.

Ham Volunteers are needed to provide communication for SAGs, Rest Stop Monitors and course safety.

* Ham Coordinator: John (ai4rt)

* Location: Carolina Ale House, 11685 Northpark Drive Wake Forest, NC 27587

* Event Website: [Velo4Yellow](#)

2016 CUPnCONE TOUR

July 23, 2016 - Saturday - Cary, NC

Future RARS 2016 Meeting Topics

Titles, topics, and speakers subject to change.

7/12/2016	Global Weather models	TC Moore
8/9/2016	Antenna Modeling	Fred Benson, NC4FB

Interesting websites

I hope everyone will read pages 18 and 19 of the first pdf file below. It tells about the misuse of QRZ. Many stations don't use QRZ correctly.

- <http://www.hamradio-operating-ethics.org/files/1-Eth-operating-EN-IARU-R1-V3-CORR-2011.pdf>
- [http://www.arrrl.org/arrrl-vintage-amateur-radio-equipment-exhibit](http://www.arrl.org/arrrl-vintage-amateur-radio-equipment-exhibit)
- <http://www.dxmaps.com/spots/map.php?Lan=E&Frec=10&ML=M&Map=W2LN&DXC=N&HF=S&GL=N>
- <http://www.dx-code.org/>

Dayton Hamvention Antenna Forum

The 2016 Dayton Hamvention Antenna Forum [slide decks](#) have been posted at: <http://www.k3lr.com>. Click on the Dayton Antenna Summary button on the left hand column. They are not all PDF - some are Power-Point. I will try to get PDFs posted in the future. Antenna forum papers are posted all the way back to 2004.

73 Tim K3LR

RARS Classifieds

Copied from www.rars.org/classifieds.php

The items below were listed within the last 30 days on the RARS website.

Wanted charger for UV-5R

Posted June 2nd, 2016 by: WZ0Q

Contact: wz0q@outlook.com

Anyone have a spare charger for the UV-5R? I am in need of one. Let me know .

Dennis, 919-413-5998, WZ0Q

Alpha 9500

Posted May 18th, 2016 by: K1ZW

Contact: lclarks@nc.rr.com

For Sale-Alpha 9500 fully automatic 1500 watt amplifier \$4800.

This Alpha 9500 is in excellent condition, I am the third owner and have used it very little for some DX. It has all the latest upgrades, about \$1000 I have the bill with parts listed. It perks along at 1500 with no strain.

You must pick it up, I have original packing and manual, Plus W6ON Elite dust cover. \$4800 919-475-3024

K1ZW, Larry, N. Durham

Ham Radio Accessories

Posted May 16th, 2016 by: K4HF

Contact: k4hf@arrl.net

1. Ham-M Rotor bottom mounting bracket - \$20.
 2. Heil BM-10-5 Headset with mike, needs new ear cushions, \$40.
 3. Heil Footswitch - \$15.
 4. MFJ 816 160-10 Mtr 300W SWR/PWR Meter - \$20.
 5. Vibroplex Chrome Paddle - \$45.
 6. 140 Watt unopened Inverter - \$20.
- Thanks, Chuck, K4HF

Various Amateur Radio Callbooks

Posted May 16th, 2016 by: K4HF

Contact: k4hf@arrl.net

1959

1965-66

1972-73

1973-74

1978

1982-83

1997

All in good condition. \$5 each; \$30 for all.

Chuck, K4HF

Museum Ships Weekend 2016 from the USS North Carolina

By: Carl, W8WZ

June is a great month for ham radio activity. We all know that the month ends with Field Day, but it also begins with a great contest too. The first weekend in June is Museum Ships Weekend. In 2016 there were 111 ships from around the world participating in the event. Volunteer hams operated stations either onboard the ship or in a maritime museum or memorial location representing a particular ship. Hams that made contact with 15 or more ships qualified for a special certificate celebrating their participation such as the one below. I have participated in this contest many times and have some very cool QSL cards from ships and a certificate with a quote from the Secretary of the Navy recognizing the special event. This year I got to be on the other side of the pileup as a guest op aboard the USS North Carolina in Wilmington, NC. Thanks to Dave W4DNA for arranging that opportunity for me. I was familiar with the ship's radio station as I had operated aboard it once before when visiting the ship as a tourist in 2015. Any ham can do that by contacting the Azalea Coast Amateur Radio Club (<http://www.ac4rc.org/>). The volunteers from that club will meet you at the ship, give you a private tour of the radio room and then let you operate. It is a lot of fun.



History



The Battleship North Carolina began its life in October 1937 when her keel was laid at the New York Navy Yard. She was commissioned on 9 April 1941 and was considered the world's greatest weapon. During WW2 she served in every major naval offensive in the Pacific and earned 15 battle stars. She was decommissioned in 1947 and in 1961 became a Museum ship in Wilmington, NC honoring the 11,000 North Carolinians who died during WW2. About 15 years ago, the Azalea Coast Amateur Radio club began restoring the ship's radios and in 2009 began the guest operator program where visitors like you and I can operate from the ship while visiting.



Radios - Transmitters



The ship originally had 9 radio rooms. Today, three of those rooms have been at least partially restored to the point that they can be used. Three of the original transmitters have been restored. All of the transmitters are in the same radio room. The main transmitter and the first one restored is a TBM4. It was installed in the ship on 15 July 1941. It can produce 500 Watts CW output and with the external modulator provide 300 Watts AM. During the war however, it was used almost exclusively for CW. The ship only used phone signals when communicating with aircraft, and those communications took place on the frequencies we today call VHF but were known as UHF during the 1940s. The transmitter has four tubes. It uses three 860s and an 861 as the final amplifier. The heart of the transmitter is a self-excited Colpitts oscillator. That master oscillator produces a relatively stable signal. That signal is then coupled into the next stage which uses the second 860 tube where it can be doubled. The signal is then coupled from

that stage into the next stage which uses the third 860 tube where it can again be doubled if needed. At that point the signal will be about 100 Watts. When the radio is in low power mode the signal is coupled from that stage directly to the antenna. When the radio is in high power mode the signal goes from that stage into the final section using the 861 tube. The 500 Watt signal coming out of the final stage is then coupled to the antenna. The transmitter contains an antenna coupling section that can couple to the antenna using either voltage or current coupling depending on the type of antenna being coupled. To say the radio is well constructed would be an extreme understatement. It is very solidly constructed and over engineered for durability. It is truly heavy duty and "Built like a Battleship". The final output signal can be anywhere between 2 - 18 Mc. During the war the records indicate that the radio was not often used above 7.5 Mc. There are hand typed and hand written notes from the crew left in the radio room that show what settings the transmitter should be pre-set to for use on frequently used frequencies. Most of their operations took place between 3 - 7 Mc. The rig uses cathode keying and presents about 180VDC across the key contacts. Each stage is keyed except the master oscillator. It takes about 3 hours for the transmitter to warm up and stop drifting (as you would expect from a self-excited oscillator). This was not a problem during WW2 as the transmitters were almost always on and ready for use if needed. It is worth pausing to remember the difficult conditions that the men who worked in these radio rooms in the South Pacific would have faced. They would have been extremely hot. The radios produce a lot of heat; the space is very close and enclosed in a small, water tight steel compartment, of course without air conditioning! It would not have been a comfortable place to be. The TBM4 was restored and put back on the air by the Azalea Coast Amateur Radio club on July 31, 2001. The first contact they made with the radio was a sked with W1SRR who had been a sailor and radioman onboard the USS North Carolina during WW2. W1SRR has since become a silent key and his QSL card is proudly displayed in the ship's main transmitter room. It is believed he is the only man to have used the North Carolina's radios during the war and later worked them

as a ham operator. Want to hear a recording of the TBM4 on the air? Click here: <http://www.navyhistory.org/wp-content/uploads/2012/02/TBM-4-Test-Sequence.wav>

The other transmitters that have been restored are a TBK7 which is very similar to the TBM4 but does not have a modulator. This radio was originally installed on 16 May 1941. The other restored transmitter is a TDE Transmitter that produced only 100 Watts RF on CW and had an optional cathode modulator that could give 30 Watts on AM. The TDE was the newest transmitter used on the ship, it was installed in 1944. It required only 2KV DC to power it as opposed to the 4KV required by the other transmitters.

The transmitter room also contains the ship's emergency transmitter which is a 500 Watt CW only transmitter for 175 to 500Kc called a TA38 transmitter. 500Kc is known as the international distress frequency. Prior to the Global Maritime Distress Safety System which came into being in 2010, Ships had to monitor 500Kc for CW distress calls. Had the USS North Carolina needed to send such a call, she would have done so using this dedicated transmitter which was kept ready to go on 500Kc. Because this transmitter is not of practical use to today's radio amateur, it is on display only in the radio room. There are also some phone transmitters that operated in the 60-80Mc range that would have been used to communicate with aircraft that are un-restored because they have no practical use for today's ham operations.

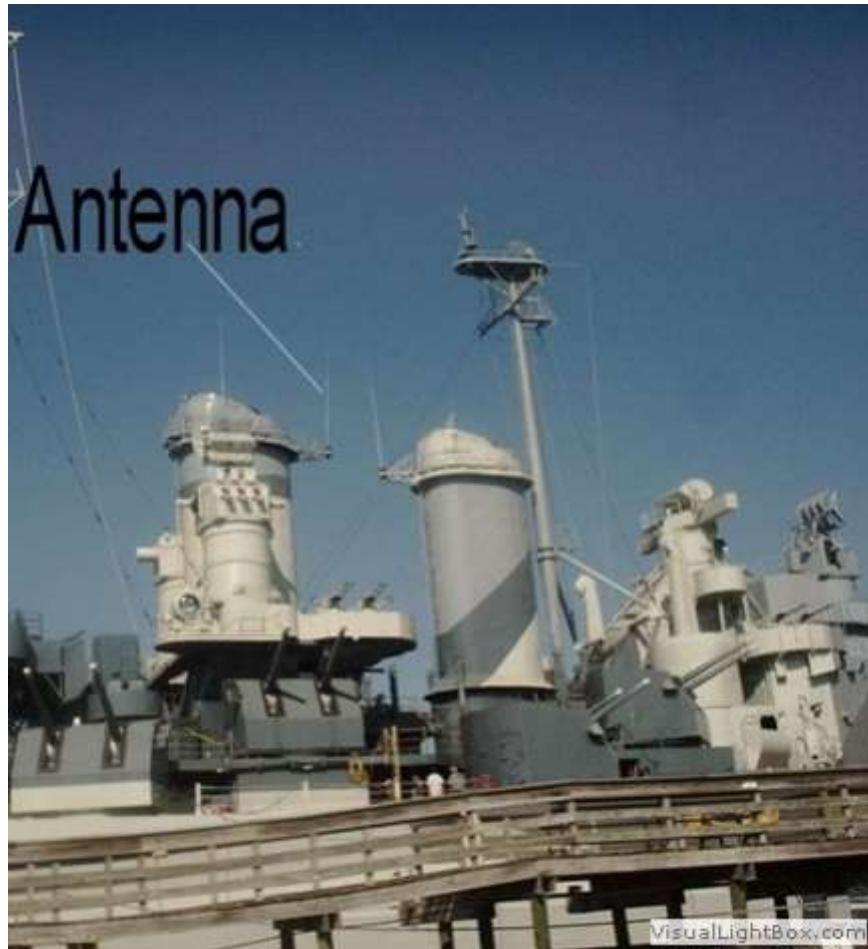
It is believed that the USS North Carolina is the only WW2 ship currently using her original WW2 radios on the air. This is because many ships that only saw service in WW2 were scrapped out after the war and ships that continued to serve after WW2 were retrofitted with more modern gear before being retired. The USS North Carolina seems to be unique in having become a Museum Ship directly after her WW2 Service and that status allows her to use her original era radios on the air today.

Radios - Receivers



War ships at sea transmitted as little as possible and received as much as possible. Therefore there were many more receiving stations than transmitting stations aboard the ship. A radio operator was stationed at a specially designed desk. On the top shelf of the desk sat two receivers made by RCA, an RBB and an RBC. The RBB covered 500Kc to 4Mc and the RBC covered 4 to 27Mc. Other than their frequency coverage the radios were identical. They are both double preselection superhets using 15 tubes each. They were built in 1940 and considered to be the "ultimate military communication receiver". Their filtering is outstanding. This includes an active audio filter! In a side by side comparison with an FT450 during our operating event we found that the old RCA still outperformed the Yaesu in its ability to filter out QRM. It should - these radios were expensive. In 1940 each receiver cost \$2,400. That is the equivalent of \$40,909 today! One power supply could power the set of receivers at the operating station. At the operator's desk was a typewriter so he could type down what he received. Most of what was received came in the form of 5 letter code groups sent via Morse. Those code groups would be passed from the radio operator to a different team of people who would decode them and learn their encrypted meaning. The operator himself just copied numbers and letters that made no sense to him. Also on his desk was a straight key. That key could be connected to any transmitter aboard the ship (in a different room) via a very elaborate patching network of cables that ran throughout the ship. There are many working RBBs and RBCs on the USS North Carolina today. They are a real pleasure to listen to.

Antennas



Originally the ship had both vertical and horizontal (wire) antennas. Today only the vertical antennas are installed. There is a hope to have the horizontal wire antennas installed again at some point. Working with the existing antenna system is a good lesson in how our interaction with antenna systems has changed over the years. Today we match impedance carefully and are concerned with feed line loss and SWR, in the 1930s and 1940s - not so much.

The feed line system portion of the antenna is most interesting. It consists of a single copper "wire" about as thick as your little finger. It looks like a copper curtain rod but it is solid. It runs inside a metal duct that looks like a smaller version of the air ducts we use for today's HVAC systems in our homes. This duct work has several doors on it that can be opened to access the feeder. When the door is opened, the antenna automatically grounds at that point. At that point, sections of the feeder can be snapped out,

they are held in place by friction couplings that resemble curtain rod hangers. This allows one feeder to be coupled into a different feeder system in a different duct by snapping the feeder connector arms from the feeder in one duct out and into the feeder in another duct. This rather elaborate system allows one radio to be connected to an option of antennas. This metal ductwork around the antenna feeder provides safety as well as some RF shielding. It will also produce some properties similar to our coax today because the air in the duct would form a dielectric of sorts with the main feeder being like our center conductor but it is certainly not a 50 - 75 ohm system. The many feeder systems like this all over the ship each comes out someplace above deck. Each one comes out above deck in the form of a bronze nut about 4 inches in diameter over a large bronze bolt in the middle of red colored insulator. A wire about as thick as your thumb then connects under that bolt and runs from that feed-point to the base of a 33 foot vertical mounted high on the ship. The vertical antennas currently in use are all near the smoke stacks. It is unfortunate that the remaining antennas are all near one another as this does make it hard to have multiple radios on the air at once due to interference that comes from having one transmitter's antenna so close to the other station's receive antenna.

The original transmitters can easily couple into this antenna system without problem. The TBM4 couples about 6 Amps of RF into the system. When using our modern radios, we need to run an antenna tuning unit to match. Fortunately, the radios we use today have built in tuners that can tune this system against the ship's hull as ground and get on the air on 40 thru 10 meters.

As you might expect, these antenna systems are very noisy. In addition to the fact that verticals tend to be noisy to begin with, a good portion of the feed-line section is not shielded that well or at all. The battleship today also turns out to be a very RF noisy environment. I noticed this when working 20 SSB during the recent contest. There were many intermittent local noises that would totally knock out our Ten Tec eagle's receiver all together for 1 - 3 seconds. We believe this is noise to be from a compressor somewhere on the ship switching on and off.

There is some coax used on the ship. It was originally used to connect the VHF (then called UHF) radios that were used to communicate with aircraft. The coax used Bakelite disks around the center con-

ductor instead of the plastic tubing that today's coax uses to contain the center conductor. In many ways it looks and feels more like today's hardline than today's coax. Today a run of that original coax is used for the NI4BK 2 meter FM radio connecting to a VHF vertical. This is used as a talk in for guest ops coming to visit the ship.

Power Supply



Anyone who has tried to restore an antique radio knows that the hardest thing to deal with is worn out mechanical parts that are no longer in production. That situation describes the ship's transmitter power supply system. The transmitters were all powered from a bank of large motor-generators in a special room. Each motor generator could support one transmitter and was rack mounted and produced 4KV DC at 300mA. Shortly after the original transmitters were restored the motor generators started to fail. If you or I were simply trying to get one of these old transmitters running in our home station we would simply build a linear supply to provide that power. However, the Battleship North Carolina is a museum first and a ham radio station second so there is a priority placed on using original gear, including the motor generator system. With that in mind the Azalea Coast Amateur Radio Club found a company in Western North Carolina to refurbish the ship's motor generator system. The project came to a stop when it was found that some small bronze parts were needed that could no longer be purchased. Several machine shops were contacted. Each one said they could produce the parts, but only in large quantity. The ship needed just 6 of them and could not afford to buy 600,000 of them! Then someone got the idea to contact a local community college's machine shop program. That proved to be

the answer. The college was happy to provide a small order of the parts and the company in Rocky Mount was able to use those parts to get the motor generators back up to spec. Today the motor generators have been returned to the battleship and are in their racks awaiting connection to the transmitters in the next room. Once those connections are made by the ship's maintenance staff, the restored transmitters will once again be on the air powered by the restored motor generators. They should be good for another 70 years!

Operating the Contest/Special Event



In 2016 NI4BK operated three different stations at the same time. The first was a SSB station using a Ten Tec Eagle. This station operated on both 20 and 40 meters throughout the weekend depending on band conditions. The second station was a digital station using a Yaesu FT840 and a laptop. Both of these stations were in radio rooms that are part of the self-guided walking tour so visitors to the battleship would walk in and see the operations. The third station

was a CW station using a Yaesu FT450 and sometimes the RCA RBC receiver. That station was located in the main transmitter radio room where self-guided tourists are not allowed to go and worked 14 and 7Mc. The SSB and Digital stations each had a dedicated logger/operator combo working. The CW station sometimes had a separate logger and sometimes the CW op did his own logging. Of the three stations the one that got the most use, as you might expect, was the SSB station. There were about 10 hams that operated during the event. Band conditions were not good this weekend but we managed to log more than 350 QSOs. The most rewarding and humbling part of the weekend was when a WW2 vet would work our station and tell us he had served in the Navy during the war and remembered the North Carolina from his years of service. This happened a couple times during the weekend and made me realize it won't be many years until we don't have the opportunity to make any more contacts like that. It is really special to be able to give one of our WW2 vets the experience of working the Battleship on his ham radio today. On sideband, you could hear in the voice of the operators how pleased they were to be making that QSO with the ship. It really makes you want to work as many stations calling as possible. It was also fun to make contact with other museum ships in the contest. We had the opportunity to work from our Atlantic Ocean position across the country to the Pacific and contact the RMS Queen Mary W6RO this year. Each ham that came out to participate in the event was a great operator and fun to get to know and work with. Most especially though, it was an honor to work with the hams who have dedicated so much time, energy and resources into restoring the USS North Carolina's station. The team of hams who have done the lion's share of that work are: Jeff K4BIX, Jack WD4OIN, Allan KX2H, Norman KI4YSY and Linwood NT4F.

There is Always Next Year!



When I was leaving on Sunday afternoon I asked the group if they would mind if a group of us from RARS came down next year. They were very excited about the idea. The Goldsboro club sends operators down to help out on Sunday but on Saturday it is just the guys from the Azalea Coast club and they would welcome some support.

Are you interested in joining me on the first Saturday in June next year?

After I got home this year I talked to the USS Nautilus special event station on 40 meters and learned that they logged more than 1000 QSOs over the weekend. If a group of say 5 of us from RARS came down to help out the Azalea Coast club on Saturday of next year's event I think we could beat that number. For instance, if I had one more CW op join me, we could handle CW alternating logging and operating (more CW ops would be even better of course). If one of us brought a memory keyer we could make short work of it. This year we used a straight key. If another two hams helped supplement the SSB operations that would go a long way to keeping voice on the air the entire day by allowing the Azalea Coast hams who really know the ship's history to talk to the tourists without needing to pause in their operating to do so. I know we have some contesters in RARS who could really teach us how to handle SSB pileups with efficiency.

Another thing that slowed down our operating on phone was that it was very hard to hear the stations. If a group of us from RARS go down next year we could make a little audio splitter that would take the audio from the radio and split it three ways. That way the oper-

ator and logger could each wear headphones and a speaker could still be used to provide audio for the tourists to hear. We could even make a separate volume control for each person. We just used a speaker and it was hard to hear the stations over the talking that was taking place with the tourists and other operators. The fact that we had high noise and bad band conditions didn't help either. It goes without saying that we were in a small steel room on the ship so acoustics were naturally rough and headphones would help.

Also, I have talked to several RARS members who know a lot about digital signal filtering. Could one of us bring a filter (or a radio with a filter) that might make that noisy vertical sound quieter than the Ten Tec Eagle's receiver can? That would sure help!

Finally, as a NTS operator, I thought it would be fun to offer tourists the option to send an NTS radio gram from the ship. We have several RARS members involved with NTS if one of us came down we could have that person helping tourists fill out radiogram forms. Certainly we could arrange a sked to get those messages off the ship and into the NTS system during the weekend.

What do you think? Are you interested in seeing this beautiful museum ship up close and operating with me in next year's Museum Ship Weekend? Honestly, who needs an excuse to spend a weekend in Wilmington in late Spring? I am going to collect a list of fellow RARS members who are interested in going down with me in 2017. If you are interested in being on that list please e-mail me at carlandatticus@yahoo.com. I am not asking you to commit to participating now, just to get on my list of potential volunteers if you have an interest. Once we get that list together we can figure out a plan and coordinate our ideas with the Azalea Coast club so that we can help them in the best way possible, allow the tourists to have a great introduction to ham radio, allow as many other hams to work the Battleship as possible and thus honor the brave sailors who served on the USS North Carolina in our small ham radio way. It will be A BOAT LOAD of fun. Let's do it!

73, Carl W8WZ